HYDRAULICS RESEARCH DIVISION

Technical Note

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DATE: May 1978 **REPORT NO:** 78-09

TITLE: "Particle Size Data Report 78-3"

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REASON FOR REPORT:

This report responds to a request for particle size data from Dr. W. Glooschenko, Process Research Division.

CORRESPONDENCE FILE NO:

5895-2

1.0 INTRODUCTION

Dr. W. Glooschenko, Process Research Division, submitted 67 samples for Particle Size Analysis on April 6, 1978, requesting only gravel, sand, silt and clay percentages. The samples were analysed by G. G. LaHaie, completed, and the results checked on April 27, 1978. The unused portion of the samples was returned to Dr. W. Glooschenko following the analysis.

2.0 PROCEDURE

The Sieve and Short Pipette Method, which provides gravel, sand, silt and clay percentages, was used to analyse the samples. Samples 137 0-2 and 137 2-4 were not analysed because of their high organic content.

Briefly, the procedure consists of:

1) splitting the sample to 20 g
2) sieving the split at -1 PHI (2.00 mm)
3) dispersing the sample in 50 ml of Calgon solution (50 g/l) and mixing it for 15 minutes.
4) recovering two pipette aliquots of 25 ml for sand, silt and clay percentages.
5) processing the results with SIZDIST: A FORTRAN IV computer program.

3.0 RESULTS

Appendix 1 lists the size analysis results for each sample. The output consists of:

1) percent gravel, sand, silt and clay.
2) ratios used to plot Folk's Ternary Classification.
3) Shepard (1954) and Folk (1974) Ternary Classifications.

REFERENCES

Folk, R. L., 1968. "Petrology of Sedimentary Rocks". Hemphill Publishing Co., Austin, Texas, 182 p.

Folk, R. L. and W. C. Ward, 1957. "Brazos River Bar: A Study in the Significance of Grain Size Parameters". Jour. Sed. Petrology, V. 27, p. 3-26.

Krumbein, W. C. and F. J. Pettijohn, 1938. "Manual of Sedimentary Petrography". Appleton-Century-Crofts, New York, 549 p.

Shepard, F. P., 1954. "Nomenclature Based on Sand-Silt Ratios". Jour. Sed. Petrology, V. 24, p. 151-158.

11 0-1 110478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.6702

PCT. GRAVEL 5.23 SAND 84.26 SILT (PIPETTE) 5.35 CLAY (PIPETTE) 1.96

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 92.49 SILT/(SILT+CLAY) 73.35PCT.GRAV+SAND/SILT+CLAY 12.31

LABELS SHEPARD -SAND FOLK(GMS)-GRAVELLY SAND (SCS)-

11 3-11 110478 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.0300

PCT. GRAVEL 31.34 SAND 53.77 SILT (PIPETTE) 5.13 CLAY (PIPETTE) 9.75

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 85.10 SILT/(SILT+CLAY) 34.54PCT.GRAV+SAND/SILT+CLAY 5.71

LABELS SHEPARD -SAND FOLK(GMS)-MUDDY SANDY GRAVEL (SCS)-

COMMENTS -

11 3-11 SAMPLE HIGH IN ORGANIC MATTER *

15 0-5 110476 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.9311

PCT. GRAVEL 0.00 SAND 8.25 SILT (PIPETTE) 78.15 CLAY (PIPETTE) 13.60

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 8.25 SILT/(SILT+CLAY) 85.18PCT.GRAV+SAND/SILT+CLAY 0.09

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

COMMENTS -

15 0-5 SAMPLE HIGH IN ORGANIC MATTER *

15 5-15 110476 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.0+23

PCT. GRAVEL 0.00 SAND 1.65 SILT (PIPETTE) 80.12 CLAY (PIPETTE) 18.22

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 1.65 SILT/(SILT+CLAY) 81.47PCT.GRAV+SAND/SILT+CLAY 0.02

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

15 31-1 110578 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.5587

PCT. GRAVEL 0.00 SAND 81.35 SILT (PIPETTE) 17.69 CLAY (PIPETTE) 0.96

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 81.35 SILT/(SILT+CLAY) 94.87PCT.GRAV+SAND/SILT+CLAY 4.36

LABELS SHEPARD -SAND FOLK(GMS)-MUDDY SAND (SCS)-SILTY SAND

STOP

20 0-17 110476 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.8+96

PCT. GRAVEL 0.00 SAND 7.56 SILT (PIPETTE) 76.69 CLAY (PIPETTE) 15.74

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 7.56 SILT/(SILT+CLAY) 82.97PCT.GRAV+SAND/SILT+CLAY 0.08

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

20 13-23 110476 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.7403

PCT. GRAVEL 0.00 SAND 9.61 SILT (PIPETTE) 75.95 CLAY (PIPETTE) 14.25

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 9.61 SILT/(SILT+CLAY) 84.21 PCT.GRAV+SAND/SILT+CLAY 0.11

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

20 28-63 110-78 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.0000

PCT. GRAVEL 0.24 SAND 7.41 SILT (PIPETTE) 84.55 CLAY (PIPETTE) 7.80

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 7.65 SILT/(SILT+CLAY) 91.55PCT.GRAV+SAND/SILT+CLAY 0.08

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

21 0-5 110476 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.5265

PCT. GRAVEL 0.00 SAND 6.30 SILT (PIPETTE) 86.52 CLAY (PIPETTE) 6.68

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 6.30 SILT/(SILT+CLAY) 92.84PCT.GRAV+SAND/SILT+CLAY 0.07

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

COMMENTS -

21 0-5 SAMPLE HIGH IN ORGANIC MATTER *

21 5-13 110678 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.6158

PCT. GRAVEL 3.10 SAND 5.00 SILT (PIPETTE) 57.00 CLAY (PIPETTE) 4.84

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 8.10 SILT/(SILT+CLAY) 94.7 PCT.GRAV+SAND/SILT+CLAY 0.09

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

21 19+ 110476 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.0415

PCT. GRAVEL 0.00 SAND 3.89 SILT (PIPETTE) 91.94 CLAY (PIPETTE) 4.17

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 3.89 SILT/(SILT+CLAY) 95.67PCT.GRAV+SAND/SILT+CLAY 0.04

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

24 0-5 110478 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.5933

PCT. GRAVEL 0.52 SAND 18.54 SILT (PIPETTE) 67.48 CLAY (PIPETTE) 13.46

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 19.06 SILT/(SILT+CLAY) 83.37PCT.GRAV+SAND/SILT+CLAY 0.24

LABELS SHEPARD -SANDY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

24 5-31 110478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.7848

PCT. GRAVEL. 0.41 SAND 14.68 SILT (PIPETTE) 66.33 CLAY (PIPETTE) 18.58

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 15.09 SILT/(SILT+CLAY) 80.48PCT.GRAV+SAND/SILT+CLAY 0.18

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

24-31-60 110678 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.3152

PCT. GRAVEL 0.00 SAND 24.38 SILT (PIPETTE) 62.18 CLAY (PIPETTE) 13.45

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 24.38 SILT/(SILT+CLAY) 82.22PCT.GRAV+SAND/SILT+CLAY 0.32

LABELS SHEPARD -SANDY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

32 0-40 110478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.5743

PCT. GRAVEL 0.00 SAND 55.01 SILT (PIPETTE) 31.15 CLAY (PIPETTE) 10.84

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 55.01 SILT/(SILT+CLAY) 74.18PCT.GRAV+SAND/SILT+CLAY 1.38

LABELS SHEPARD -SILTY SAND FOLK(GMS)-MUDDY SAND (SCS)-SILTY SAND

32 49-62 110478 SIEVE AND PIPETTE(2) SAMPLE WT.= 26.8710

PCT. GRAVEL 0.00 SAND 61.79 SILT (PIPETTE) 29.99 CLAY (PIPETTE) 8.62

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 61.79 SILT/(SILT+CLAY) 77.45PCT.GRAV+SAND/SILT+CLAY 1.62

LABELS SHEPARD -SILTY SAND FOLK(GMS)-MUDDY SAND (SCS)-SILTY SAND

32 62+ 110478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.7913

PCT. GRAVEL 0.00 SAND 59.42 SILT (PIPETTE) 31.12 CLAY (PIPETTE) 9.46

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 59.42 SILT/(SILT+CLAY) 76.69PCT.GRAV+SAND/SILT+CLAY 1.46

LABELS SHEPARD -SILTY SAND FOLK(GMS)-MUDDY SAND (SCS)-SILTY SAND

34 2-0 110476 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.9300

PCT. GRAVEL 0.00 SAND 15.30 SILT (PIPETTE) 53.83 CLAY (PIPETTE) 30.87

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 15.30 SILT/(SILT+CLAY) 63.56PCT.GRAV+SAND/SILT+CLAY 0.18

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY MUD

35 E-21 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.0220

PCT. GRAVEL 0.00 SAND 11.08 SILT (PIPETTE) 86.61 CLAY (PIPETTE) 2.31

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 11.08 SILT/(SILT+CLAY) 92.42PCT.GRAV+SAND/SILT+CLAY 0.12 .

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY MUD

35 21+ 130-75 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.9037

PCT. GRAVEL 0.00 SAND 13.14 SILT (PIPETTE) 58.96 CLAY (PIPETTE) 27.91

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 13.14 SILT/(SILT+CLAY) 67.87PCT.GRAV+SAND/SILT+CLAY 0.15

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

49 9-81 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.0547

PCT. GRAVEL 4.19 SAND 90.24 SILT (PIPETTE) 3.12 CLAY (PIPETTE) 2.46

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 94.42 SILT/(SILT+CLAY) 55.93PCT.GRAV+SAND/SILT+CLAY 16.94

LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-SAND

49 51+ 130476 SIEVE AND PIPETTE(2) SAMPLE WT.= 24.0909

PCT. GRAVEL 37.01 SAND 56.97 SILT (PIPETTE) 4.39 CLAY (PIPETTE) 1.63

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 93.98 SILT/(SILT+CLAY) 72.99PCT.GRAV+SAND/SILT+CLAY 15.62

LABELS SHEPARD -SAND FOLK(GMS)-SANDY GRAVEL (SCS)-

61 0-1.5 130478 SIEVE AND PIPETTE(2) SAMPLE WT.- 20.7472

PCT. GRAVEL 0.16 SAND 85.44 SILT (PIPETTE) 10.48 CLAY (PIPETTE) 3.90

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 85.62 SILT/(SILT+CLAY) 72.87PCT.GRAV+SAND/SILT+CLAY 5.95

LABELS SHEPARD -SAND FOLK(GMS)-MUDDY SAND (SCS)-SILTY SAND

61 1.5 - 17 130678 SIEVE AND PIPETTE(2) SAMPLE WT.= 26.3991

PCT. GRAVEL 0.98 SAND 85.65 SILT (PIPETTE) 6.07 CLAY (PIPETTE) 4.30

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 89.63 SILT/(SILT+CLAY) 58.52PCT.GRAV+SAND/SILT+CLAY 8.64

LABELS SHEPARD -SAND FOLK(GMS)-MUDDY SAND (SCS)-MUDDY SAND

61 17+ 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 22.8562

PCT. GRAVEL 8.39 SAND 84.45 SILT (PIPETTE) 5.07 CLAY (PIPETTE) 2.09

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 92.84 SILT/(SILT+CLAY) 70.84PCT.GRAV+SAND/SILT+CLAY 12.96

LABELS SHEPARD -SAND FOLK(GMS)-GRAVELLY SAND (SCS)-

78 0-35 130476 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.9578

PCT. GRAVEL 0.00 SAND 7.99 SILT (PIPETTE) 51.72 CLAY (PIPETTE) 40.30

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 7.99 SILT/(SILT+CLAY) 56.21PCT.GRAV+SAND/SILT+CLAY 0.09

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-MUD

85 0-9 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.7746

PCT. GRAVEL 0.00 SAND 12.94 SILT (PIPETTE) 68.57 CLAY (PIPETTE) 18.48

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 12.94 SILT/(SILT+CLAY) 78.77PCT.GRAV+SAND/SILT+CLAY 0.15

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

85 9-10 130476 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.3755

PCT. GRAVEL 0.00 SAND 15.15 SILT (PIPETTE) 68.08 CLAY (PIPETTE) 16.77

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 15.15 SILT/(SILT+CLAY) 80.23PCT.GRAV+SAND/SILT+CLAY 0.18

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

85 12+ 130-78 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.5492

PCT. GRAVEL 0.22 SAND 7.15 SILT (PIPETTE) 79.70 CLAY (PIPETTE) 12.94

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 7.37 SILT/(SILT+CLAY) 86.04PCT.GRAV+SAND/SILT+CLAY 0.08

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

103 1-17 130476 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.0052

PCT. GRAVEL 13.76 SAND 49.61 SILT (PIPETTE) 28.55 CLAY (PIPETTE) 8.08

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 63.37 SILT/(SILT+CLAY) 77.94PCT.GRAV+SAND/SILT+CLAY 1.73

LABELS SHEPARD -SILTY SAND FOLK(GMS)-GRAVELLY MUDDY SAND (SCS)-

105 1-5 130478 SIEVE AND PIPETTE(2) SAMPLE WT.- 22.30-2

PCT. GRAVEL 41.06 SAND 54.16 SILT (PIPETTE) 3.13 CLAY (PIPETTE) 1.66

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 95.21 SILT/(SILT+CLAY) 65.39PCT.GRAV+SAND/SILT+CLAY 19.89

LABELS SHEPARD -SAND FOLK(GMS)-SANDY GRAVEL (SCS)-

105 6-17 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 22.5535

PCT. GRAVEL 30.10 SAND 65.66 SILT (PIPETTE) 3.24 CLAY (PIPETTE) 1.00

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 95.76 SILT/(SILT+CLAY) 76.45PCT.GRAV+SAND/SILT+CLAY 22.56

LABELS SHEPARD -SAND FOLK(GMS)-SANDY GRAVEL (SCS)-

105 17+ 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 2-.1853

PCT. GRAVEL 15.76 SAND 78.51 SILT (PIPETTE) .06 CLAY (PIPETTE) 1.67

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 94.27 SILT/(SILT+CLAY) 70.88PCT.GRAV+SAND/SILT+CLAY 16.45

LABELS SHEPARD -SAND FOLK(GMS)-GRAVELLY SAND (SCS)-

137 4-7 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.5142

PCT. GRAVEL 0.00 SAND 5.69 SILT (PIPETTE) 51.55 CLAY (PIPETTE) 42.76

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 5.69 SILT/(SILT+CLAY) 54.66PCT.GRAV+SAND/SILT+CLAY 0.06

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-MUD

COMMENTS -

137 4-7 A LOT OF OPGANIC MATERIAL PRESENT IN THE SAMPLE *

137 7+ 13CL78 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.1125

PCT. GRAVEL 0.00 SAND 7.11 SILT (PIPETTE) 52.08 CLAY (PIPETTE) 40.81

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 7.11 SILT/(SILT+CLAY) 56.07PCT.GRAV+SAND/SILT+CLAY 0.08

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-MUD

138 0-3 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.9519

PCT. GRAVEL 0.00 SAND 25.29 SILT (PIPETTE) 55.15 CLAY (PIPETTE) 19.57

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 25.29 SILT/(SILT+CLAY) 73.81PCT.GRAV+SAND/SILT+CLAY 0.3-

LABELS SHEPARD -SANDY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

138 3-23 180478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.2335

PCT. GRAVEL 1.08 SAND 16.47 SILT (PIPETTE) 61.67 CLAY (PIPETTE) 20.78

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 17.56 SILT/(SILT+CLAY) 74.80PCT.GRAV+SAND/SILT+CLAY 0.21

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

138 281 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 22.1152

PCT. GRAVEL 0.00 SAND 12.40 SILT (PIPETTE) 66.56 CLAY (PIPETTE) 21.05

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 12.40 SILT/(SILT+CLAY) 75.98PCT.GRAV+SAND/SILT+CLAY 0.14

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

201 AH 130475 SIEVE AND PIPETTE (2) SAMPLE WT.= 28.3350

PCT. GRAVEL 0.13 SAND 23.40 SILT (PIPETTE) 62.57 CLAY (PIPETTE) 13.90

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 23.53 SILT/(SILT+CLAY) 81.82PCT.GRAV+SAND/SILT+CLAY 0.31

LABELS SHEPARD -SANDY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

COMMENTS -

201 AH LOTS OF ORGANIC MATERIAL PRESENT IN THE SAMPLE *

201 C 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.6522

PCT. GRAVEL 0.00 SAND 33.54 SILT (PIPETTE) 57.43 CLAY (PIPETTE) 9.03

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 33.54 SILT/(SILT+CLAY) 86.41PCT.GRAV+SAND/SILT+CLAY 0.50

LABELS SHEPARD -SANDY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

201 C 11 180476 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.3386

PCT. GRAVEL 0.00 SAND 5.03 SILT (PIPETTE) 78.30 CLAY (PIPETTE) 15.67

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 5.03 SILT/(SILT+CLAY) 83.32PCT.GRAV+SAND/SILT+CLAY 0.06

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

1-E7+ 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.-5L1

PCT. GRAVEL 3.75 SAND 23.21 SILT (PIPETTE) 46.39 CLAY (PIPETTE) 2-.65

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 26.96 SILT/(SILT+CLAY) 66.26PCT.GRAV+SAND/SILT+CLAY 0.37

LABELS SHEPARD -SAN SIL CLY FOLK(GMS)-SANDY MUD (SCS)-SANDY MUD

3-43 130476 SIEVE AND PIPETTE (2) SAMPLE WT.- 20.9968

PCT. GRAVEL 0.84 SAND 44.43 SILT (PIPETTE) 32.73 CLAY (PIPETTE) 22.01

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 45.27 SILT/(SILT+CLAY) 59.80PCT.GRAV+SAND/SILT+CLAY 0.83

LABELS SHEPARD -SAN SIL CLY FOLK(GMS)-SANDY MUD (SCS)-SANDY MUD

5-77 130476 SIEVE AND PIPETTE(2) SAMPLE WT.= 23.3821

PCT. GRAVEL 17.29 SAND 76.15 SILT (PIPETTE) 4.10 CLAY (PIPETTE) 2.47

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 93.44 SILT/(SILT+CLAY) 62.43PCT.GRAV+SAND/SILT+CLAY 14.2-

LABELS SHEPARD -SAND FOLK(GMS)-GRAVELLY SAND (SCS)-

6-90 130-78 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.9456

PCT. GRAVEL 1.16 SAND 47.20 SILT (PIPETTE) 31.46 CLAY (PIPETTE) 20.18

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 48.36 SILT/(SILT+CLAY) 60.93PCT.GRAV+SAND/SILT+CLAY 0.94

LABELS SHEPARD -SAN SIL CLY FOLK(GMS)-SANDY MUD (SCS)-SANDY MUD

1C-112-135 130478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.5090

PCT. GRAVEL 0.00 SAND 10.74 SILT (PIPETTE) 46.09 CLAY (PIPETTE) 43.17

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 10.74 SILT/(SILT+CLAY) 51.63PCT.GRAV+SAND/SILT+CLAY 0.12

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY MUD

14-80 180-78 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.6813

PCT. GRAVEL 0.00 SAND 2.99 SILT (PIPETTE) 78.31 CLAY (PIPETTE) 18.70

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 2.99 SILT/(SILT+CLAY) 80.73PCT.GRAV+SAND/SILT+CLAY 0.03

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

16-65+ 180478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.9172

PCT. GRAVEL 0.00 SAND 3.70 SILT (PIPETTE) 77.63 CLAY (PIPETTE) 18.67

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 3.70 SILT/(SILT+CLAY) 80.62PCT.GRAV+SAND/SILT+CLAY 0.04

LABELS SHEPARD -SILT FOLK(GMS)-MUD (SCS)-SILT

17A-104 180478 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.32+3

PCT. GRAVEL 0.00 SAND 2.80 SILT (PIPETTE) 74.48 CLAY (PIPETTE) 22.72

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 2.80 SILT/(SILT+CLAY) 76.63PCT.GRAV+SAND/SILT+CLAY 0.03

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-SILT

18-0-40 180678 SIEVE AND PIPETTE(2) SAMPLE WT.= 22.5172
PCT. GRAVEL 0.00 SAND 5.19 SILT (PIPETTE) 70.55 CLAY (PIPETTE) 24.27
(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 5.19 SILT/(SILT+CLAY) 74.41PCT.GRAV+SAND/SILT+CLAY 0.05
LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-SILT

25-140 180478 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.2252

PCT. GRAVEL 0.00 SAND 14.85 SILT.(PIPETTE) 63.99 CLAY (PIPETTE) 21.16

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 14.85 SILT/(SILT+CLAY) 75.15PCT.GRAV+SAND/SILT+CLAY 0.17

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

53-76+ 180-78 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.8055

PCT. GRAVEL 0.00 SAND 6.85 SILT (PIPETTE) 53.19 CLAY (PIPETTE) 39.96

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 6.85 SILT/(SILT+CLAY) 57.10PCT.GRAV+SAND/SILT+CLAY 0.07

LABELS SHEPARD -CLAYEY SILT FOLK(G'MS)-MUD (SCS)-MUD

77-195+ 180-78 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.2362

PCT. GRAVEL 0.00 SAND 1.83 SILT (PIPETTE) 50.53 CLAY (PIPETTE) 47.64

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 1.83 SILT/(SILT+CLAY) 51.47PCT.GRAV+SAND/SILT+CLAY 0.02

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-MUD

79-66+ 200478 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.1522

PCT. GRAVEL 0.00 SAND 15.94 SILT (PIPETTE) 40.70 CLAY (PIPETTE) 43.36

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 15.94 SILT/(SILT+CLAY) 48.41PCT.GRAV+SAND/SILT+CLAY 0.16

LABELS SHEPARD -SILTY CLAY FOLK(GMS)-SANDY MUD (SCS)-SANDY MUD

82-180 180478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.0494

PCT. GRAVEL 0.00 SAND 6.37 SILT (PIPETTE) 53.3 CLAY (PIPETTE) 40.28

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 6.37 SILT/(SILT+CLAY) 56.98PCT.GRAV+SAND/SILT+CLAY 0.07

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-MUD

84-31 200-76 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.5257

PCT. GRAVEL 0.00 SAND 19.29 SILT (PIPETTE) 72.94 CLAY (PIPETTE) 7.77

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 19.29 SILT/(SILT+CLAY) 90.37PCT.GRAV+SAND/SILT+CLAY 0.24

LABELS SHEPARD -SANDY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

86-MINERAL 230478 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.1860

PCT. GRAVEL 0.00 SAND 1.87 SILT (PIPETTE) 74.63 CLAY (PIPETTE) 23.50

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 1.87 SILT/(SILT+CLAY) 76.05PCT.GRAV+SAND/SILT+CLAY 0.02

LABELS SHEPARD -CLAYEY SILT FOLK(GMS)-MUD (SCS)-SILT

102-MINERAL 200678 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.7793

PCT. GRAVEL 0.00 SAND 78.85 SILT (PIPETTE) 14.82 CLAY (PIPETTE) 6.33

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 78.85 SILT/(SILT+CLAY) 70.09PCT.GRAV+SAND/SILT+CLAY 3.73

LABELS SHEPARD -SAND FOLK(GMS)-MUDDY SAND (SCS)-SILTY SAND

132-534 200478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.335

PCT. GRAVEL 7.91 SAND 41.62 SILT (PIPETTE) 40.96 CLAY (PIPETTE) 9.51

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 49.53 SILT/(SILT+CLAY) 81.15PCT.GRAV+SAND/SILT+CLAY 0.98

LABELS SHEPARD -SILTY SAND FOLK(GMS)-GRAVELLY MUD (SCS)-

AB-1 1-3 200478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.2800

PCT. GRAVEL 0.00 SAND 46.31 SILT (PIPETTE) 37.40 CLAY (PIPETTE) 14.30

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 46.31 SILT/(SILT+CLAY) 72.34PCT.GRAV+SAND/SILT+CLAY 0.93

LABELS SHEPARD -SILTY SAND FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

AB-1 0-12 200478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.5793

PCT. GRAVEL 0.11 SAND 38.31 SILT (PIPETTE) 47.01 CLAY (PIPETTE) 14.57

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 38.42 SILT/(SILT+CLAY) 76.34PCT.GRAV+SAND/SILT+CLAY 0.62

LABELS SHEPARD -SANDY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

A8-1 12+ 20Oct76 SIEVE AND PIPETTE(2) SAMPLE WT.= 21.7325

PCT. GRAVEL 0.00 SAND +6.13 SILT (PIPETTE) +2.94 CLAY (PIPETTE) 10.33

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 46.13 SILT/(SILT+CLAY) 79.72PCT.GRAV+SAND/SILT+CLAY 0.86

LABELS SHEPARD -SILTY SAND FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

200 200478 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.6865

PCT. GRAVEL 0.00 SAND 13.18 SILT (PIPETTE) 70.52 CLAY (PIPETTE) 16.30

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 13.18 SILT/(SILT+CLAY) 81.23PCT.GRAV+SAND/SILT+CLAY 0.15

LABELS.SHEPARD -CLAYEY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

BASAL TILL 200478 SIEVE AND PIPETTE(2) SAMPLE WT.= 22.7069
PCT. GRAVEL 4.13 SAND 61.-2 SILT (PIPETTE) 33.79 CLAY (PIPETTE) 0.67

(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 65.54 SILT/(SILT+CLAY) 98.05PCT.GRAV+SAND/SILT+CLAY 1.90 .

LABELS SHEPARD -SILTY SAND FOLK(GMS)-MUDDY SAND (SCS)-SILTY SAND

WIC 1?-500MM 200.78 SIEVE AND PIPETTE(2) SAMPLE WT.= 20.5795
PCT. GRAVEL 0.00 SAND 23.65 SILT (PIPETTE) 58.98 CLAY (PIPETTE) 17.37
(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00
GRAVEL+SAND 23.65 SILT/(SILT+CLAY) 77.25PCT.GRAV+SAND/SILT+CLAY 0.31
LABELS SHEPARD -SANDY SILT FOLK(GMS)-SANDY MUD (SCS)-SANDY SILT

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STOP